

THOMAS CARNWATH

by

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THE Queen's University received a benefaction from Mrs. Carnwath and her family in 1955 to provide prizes in social and preventive medicine in memory of her husband, the late Dr. Thomas Carnwath. These awards originally took the form of a medal and book prize for the student gaining the highest place in the final part one examination in social and preventive medicine, a book prize for the student gaining the next highest place and a medal and book prize for the graduate gaining the highest place in the D.P.H. examination. Medals were first given in July 1956, the undergraduate medal being awarded to Ingrid V. Allen, now professor of neuropathology and the graduate medal to Dr. Peter Froggatt, now Vice Chancellor and President of Queen's University*. Since the change in title of the Department of Social and Preventive Medicine to the Department of Community Medicine in 1976, the undergraduate medal currently is awarded to the student placed first in community medicine at the end of fourth year and no graduate medals have been given since the D.P.H. course was suspended in July 1972. The latter situation may change now that community physicians are examined by the Faculty of Community Medicine of the Royal College of Physicians of London.

This is a brief account of the life and work of Thomas Carnwath (Fig. 1), one of Queen's most distinguished medical graduates.

BACKGROUND AND TRAINING

Thomas Carnwath was born on 7th April 1878 in Strabane, county Tyrone, the youngest son of Joseph and Mary (née Porterfield) Carnwath who had a family of six boys and two girls. The Carnwaths were of Scottish origin and came to Ulster in the seventeenth century probably from the village of Carnwath, Lanarkshire, which is south-west of Edinburgh on the road to Lanark. The name is uncommon in Northern Ireland and, for example, was not listed by Sir Robert Mathewson¹ in his analysis based on surnames having five entries and upwards in the birth indexes of 1890 maintained by the general register office in Dublin. Also the surname is not included in MacLysaght's more recent publication.² County Tyrone was planted by James Hamilton and a fellow scot, James Fullerton from 1587 onwards.³ Officially

*The Carnwath medal for undergraduates has been awarded annually since 1956. The recipients from 1956 to 1981 were respectively: Ingrid V. Allen, Grace E. Allen, Columba A. Gorman, Norman C. Nevin, William Thompson, Samuel R. Keilty, Michael E. Scott, Donal A. J. Keegan, Robert J. Stuart, Peter G. Nelson, Helen Mawhinney, Arthur J. Robinson, Samuel G. Carruthers, Jocelyn R. Corbett, Robert E. Henderson, Patricia C. A. Shepherd, Hugh McA. Taggart, Moira Hill, Allister J. Taggart, Helen W. A. Calvert, Margaret E. Cupples, John T. Lawson, Dora E. Stelfox, Bernadette M. Cullen, Kenneth A. Larkin, Mary G. O'Hara.

The Carnwath medal for the highest place in the D.P.H. course was awarded in 1956, 1959, 1960, 1961, 1962, 1964, 1966, 1968 and 1970 to the following: Peter Froggatt, Olumide A. Lucas, Peter C. Elwood, Roger Blaney, B. Claire, C. Davison, Jean H. Jolly, Bahshish M. Singh, Rosemary Meyers, James G. McC. Johnston.



Fig. 1.
Thomas Carnwath, D.S.O., M.B., D.Sc.
photographed in 1935.

no undertaker was allowed to get more than 2000 acres and others were to receive 1500 acres or 1000 acres but this system was greatly abused with some parties obtaining much less and some much more land. It is known that Andrew Carnwath settled in the townland of Stoneypath, some four miles north-east of Strabane, around 1650 and farmed 1000 acres obtained during the plantation in the reign of James I. Andrew is recorded as an elder of Donagheady (17th century spelling Donagheadie) Presbyterian church which was established in 1658, with the first incumbent from 1672-1700 being the Reverend John Hamilton. A second church was built in 1855 and during this century the congregations of First Donagheady and Second Donagheady Presbyterian churches were amalgamated so that the present building is that erected in 1855 and the original (first church) is now demolished. Thomas Carnwath's early schooling was in Strabane and then at Foyle College, Londonderry. He entered Queen's College, Belfast as a matriculated student of the Royal University of Ireland in October 1896.

Prizes soon followed and included first and second year scholarships in medicine in 1897-98 and 1898-99, a scholarship in chemistry in 1900-01 and one of two Dunville studentships which were awarded in alternate years for physical science and biological science respectively. Primary degrees of B.A. (with honours) in chemistry and physiology were obtained in 1900 and M.B., B.Ch., B.A.O. (with honours) in 1903. His outstanding abilities in both science and medicine led him to take up the post of demonstrator in anatomy from 1903-04 under Professor J. Symington while at the same time being senior scholar in chemistry in Professor Lett's department where he completed the prescribed course in this subject required for the D.P.H. of Cambridge University. Dr. Carnwath also took a special course in bacteriology in 1904 under Professor Lorrain Smith (late of Queen's), head of the Institute of Pathology of Victoria University, Manchester.

By now Thomas Carnwath was firmly committed to a career in public health and was nominated by Queen's College for an 1851 exhibition. He was appointed a bursar for 1904-05 and a scholar for the following years 1905-07. At that time, as at present, these scholarships were highly competitive and prestigious awards. They owe their existence to a surplus of money remaining after winding up the affairs of the Great Exhibition of 1851.⁴ The Commissioners for this Exhibition realised that this event would yield substantial profits and with additional voluntary subscriptions a guarantee fund of over £300,000 was created. The Commissioners led by the Prince Consort considered the educational needs of the country would be best served by providing a locality to foster multi-disciplinary interests for industrial education of potential benefit to the whole nation. Some eighty-seven acres at South Kensington were purchased at a cost of £3500 per acre, and during the ensuing years this estate was laid out to include, amongst others, such national institutions as the Victoria and Albert Museum, the Royal College of Science, the Royal College of Art and Imperial College. Around 17 to 20 scholarships for scientific research were awarded annually from 1891 onwards and university students from the United Kingdom, the British Empire, the Commonwealth and other countries formerly linked with the Empire were eligible to apply. Between 1891 and 1979, 1170 scholars have been appointed, of whom 118 became Fellows of the Royal Society, eight Nobel Laureates and five have received the Order of Merit. One of the first scholars was the famous physicist Ernest Rutherford, born in Nelson, New Zealand in 1871,

who obtained an exhibition in 1894 to study at Trinity College, Cambridge and the Cavendish Laboratory. Dr. Carnwath's nomination for an 1851 award states that his proposed research was to be in the fields of bacteriology and chemistry relating to the bacterial flora of shellfish and their association with sewage pollution in Belfast lough.

POLLUTION IN BELFAST LOUGH

The growth of industrial cities during the Victorian era was accompanied by serious health hazards due to environmental pollution. All large centres in the British Isles were affected as also were cities in Europe and North America. The major problem was the discharge of ever increasing amounts of untreated sewage into rivers and estuaries. In 1898 the Government appointed a Royal Commission "to inquire and report what methods of treating and disposing of sewage (including any liquid from factory or manufacturing process) may be adopted". The Commission chaired by Walter Stafford, Earl of Iddesleigh, sat for 16 years and produced nine exhaustive and detailed reports together with a final report containing their summary, conclusions and recommendations.⁵ Of these reports four deal mainly with the purification of domestic sewage being discharged into streams (interim, second, fifth and eighth reports), two with the discharge of sewage into tidal waters (fourth and seventh reports) and three with the discharge of manufacturing effluents (third, sixth and ninth reports). One report,⁶ the seventh, contains observations made at the request of the Local Government Board for Ireland with conditions arising in Belfast lough in particular. For this work medical officers of health throughout the British Isles were consulted, river estuaries inspected and sewage samples and specimens of flora and fauna were collected for later examination in the laboratory. In addition experiments were made into the effects of local tides moving effluent from discharge sites to more distant locations.

Much of the evidence relating to Belfast and other cities in Ireland presented to the Royal Commission was prepared by Edmund Letts and a number of colleagues including Thomas Carnwath who worked with him during the period from 1898 to around 1912. Albert Edmund Letts had succeeded Thomas Andrews as Professor of Chemistry at Queen's in 1879 following a four year period as the first Professor of Chemistry at University College, Bristol. As well as presenting his evidence to the Royal Commission he also undertook investigations of Belfast lough on behalf of the Belfast Health Commission.⁷ The latter was appointed in 1907 by the Local Government Board for Ireland 'to inquire into the public health of the City of Belfast and to make recommendations for its improvement'. By 1900 Belfast was the eighth largest city in the British Isles and was growing at the rate of between 2 per cent and 4 per cent per year. The 1901 census population was 349,180 persons resident in an area of 14,716 acres. Death rates, especially from infections, were high and public health administration was fragmented. The most obvious problem however, and the one of greatest public concern, was the disposal of sewage.

Belfast had not wholeheartedly adopted the sanitary ideas enunciated by Edwin Chadwick⁸ from 1832 onwards. Main sewers were laid down in some parts of the city but not in others. However, one of the main methods for sewage disposal was by a chute, approximately 4 ft. by 4 ft. in size, which came into operation in 1893 and discharged untreated material mainly at night into Belfast lough (Fig. 2). This chute was fed by a storage area capable of containing about one million gallons of raw

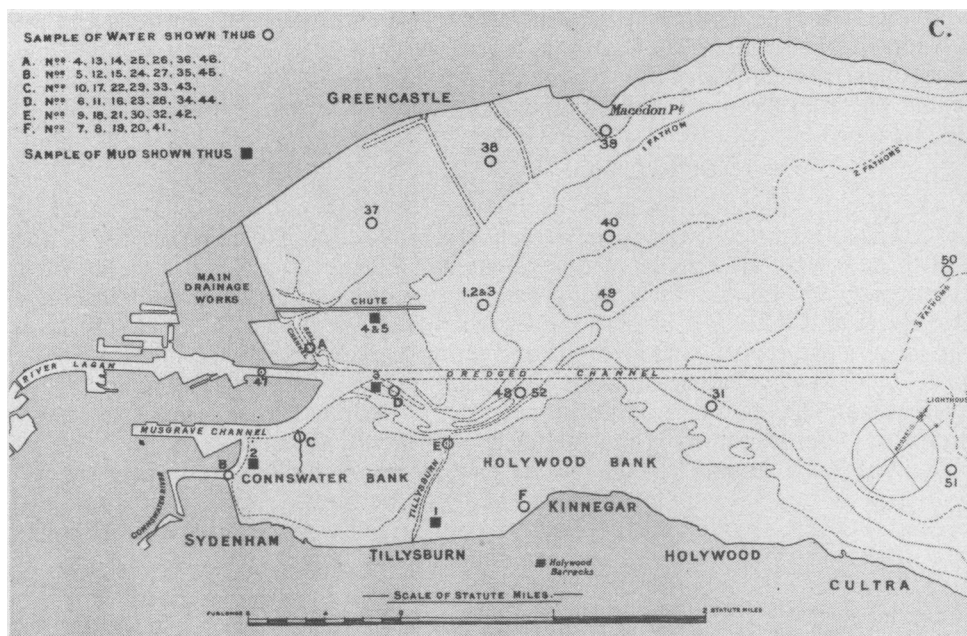


Fig. 2.

The sewage disposal system for Belfast indicating main drainage works and chute and location of samples of mud and water surveyed by Professor Letts and colleagues.

waste. By day sewage from the neighbouring industrial complex of Harland and Wolff which then employed 10,000 men drained untreated effluent directly into the river Lagan. In addition to this already overwhelming burden of pollution entering Belfast lough a new phenomenon occurred, namely the growth of large masses of a seaweed, *Ulva latissima* or 'sea-lettuce'. Reconstruction of the Belfast system of sewage was undertaken from 1887 to 1893 when the chute began to operate. This soon became leaky, often blocked, and discharged into shallow and sluggish water. On the slob lands of Belfast lough seaweed began to grow prolifically, particularly in areas where there were dense banks of mussels and other shellfish. By 1890 *Ulva latissima* covered nearly 2400 acres of slob land between the Musgrave Channel and Cultra (Fig. 3)¹⁰ and the deposit on the shore at Hollywood was 3 ft. thick. During the summer this putrefied and at low tide the stench was overpowering owing to the formation of sulphuretted hydrogen from the decomposing mess. After a storm enormous quantities were washed up on the shore around Hollywood, Cultra, Carrickfergus and Whitehead with banks of rotting weed extending for miles along the coast. Wealthy residents were concerned not only about the appalling smell but also by the adverse effect on coastal property prices. Henry Harrison who owned a large stretch of coastline at Hollywood employed a consulting engineer, Mr. R.I. Calwell, to examine aspects of this problem and presented his own findings to the Royal Commission in February 1910.

Dr. Carnwath meanwhile obtained the D.P.H. from Cambridge University in 1906 and had travelled to Germany to further his research on the problem of estuary pollution. He worked under Professor Dunbar, Director of the Staatlichen Hygienischen Institut, Hamburg, from May 1906 until January 1907, and from then until his return to England under Professor Uhlenhuth at the Kaiserlichen Gesundheitsamte, Berlin. Germany at that time was the mecca for aspiring physicians, the most influential figure being Robert Koch, Director of the Institute of Health in Berlin, who received the Nobel Prize for Medicine in 1905 in recognition of his work on tuberculosis and other infections. Dr. Carnwath, as well as being medically qualified, was a gifted linguist and could pass for a German citizen. His 1906-07 papers written in German deal with several topics. The first¹¹ describes an investigation conducted under the direction of Professor Uhlenhuth into an outbreak of an illness in hens kept by the bacteriology department of the Ministry of Health in Berlin. They suffered from a diphtheria type condition, restricted to the mucous membranes of the head, diagnosed as due to the organism causing chicken diphtheria. By innoculating healthy hens with isolates of the causative agent, Dr. Carnwath demonstrated that this was identical with the organism which causes chicken-pox. A second paper,¹² also based on work with Dr. Uhlenhuth, relates to a micromethod for examining small traces of blood as required in forensic practice. The third paper¹³ written with Dr. Kammann is an extensive account of an intermittent ground filtration method for treating sewage. The oldest technique used in Germany and the rest of Europe until the 1880's was to

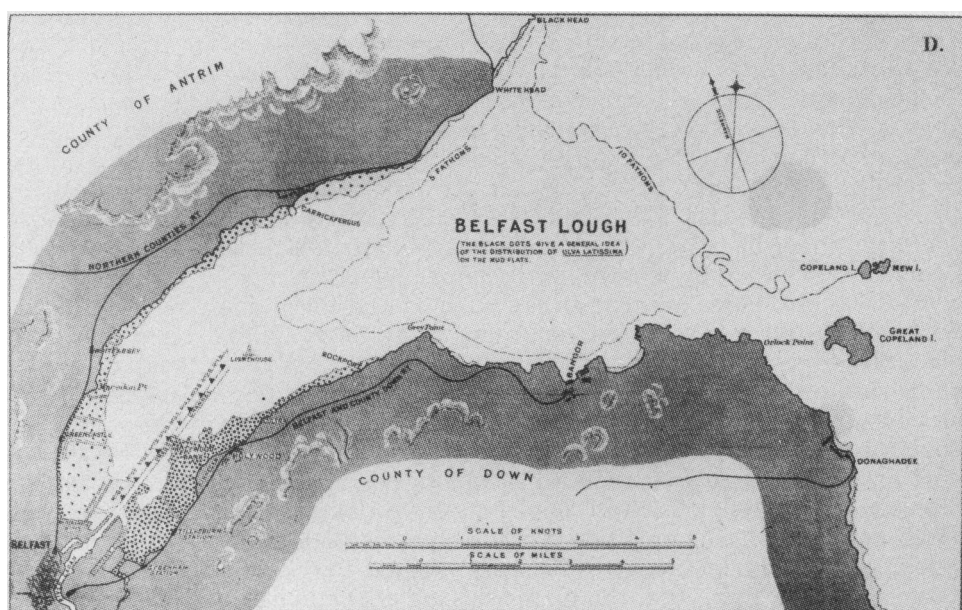


Fig. 3.
*Map of Belfast lough indicating 2400 acres of foreshore covered by growths of the seaweed *Ulva latissima* (sea-lettuce).*

spray the surface of the land with sewage waste and allow weather and the soil to take their natural course. There is nothing wrong with this technique except that one hectare (2.5 acres) of land is required to handle waste from around 500 persons. The limiting factor is the natural filter created by the spaces between soil particles; for example, if this is blocked by spreading too much sewage on the surface of the ground an irreversible situation occurs resulting in this particular land being useless for many years. Numerous attempts were made to improve on nature and in the town of Lawrence, Massachusetts, an experiment showed that one hectare of land might handle waste from up to 3000 persons. If the soil surface is coated with a layer of coal or slack which act as oxidising agents, waste from 50,000 persons can be treated per hectare; an even better filter is produced by using coarse sand. Dr. Carnwath's paper describes the effects of using gravel or sand filtration with different particle sizes, the importance of a rest period for filter beds of at least three days between treatments of batches of sewage, and the effect of temperature on the nitrification process. This is very important as during winter one complete cycle of nitrification may take up to three months compared with between seven to eight days in summer. Serious problems arise when snow and ice cover the ground because the surface of the filter cannot be cleaned and raked. Experiments were made in laboratories in Germany by Dr. Carnwath and also with Professor Letts in Belfast to determine whether the growth and subsequent breakdown of seaweed were primarily influenced by chemicals or bacteria in sewage effluent. They demonstrated that *Ulva latissima* grew abundantly owing to the high nitrogen content, in the form of ammonia and nitrates, in the polluted seawater of the lough, that lack of oxygen exacerbates the putrefaction process and that a biological filtration method for treating sewage is required because mechanical or absorption methods on their own are inadequate. Letts further showed that a satisfactory effluent for Belfast needed to contain a minimum of organic matter as well as a minimum of ammonia and of nitrates. This was possible by combining bacterial treatment with denitrification, a process whereby free nitrogen gas is produced by the reduction of nitrates or nitrites by chemicals or bacteria. However, what was to be done about the tons of seaweed already polluting Belfast lough? By 1909 the City Surveyor, Henry A. Cutler, and two members of his staff, Colin C. Frye and G. Bertram Kershaw, together with Edmund Letts began experiments whereby one hundredweight of copper sulphate crystals was distributed over one acre of polluted slob land at low tide.¹⁴ The copper sulphate was carried in buckets and applied by hand. Within three weeks the seaweed had turned brown and became detached from its anchorage, usually underlying beds of mussels. Other cheaper chemicals, including sulphuric acid, bleaching powder, caustic soda and quick lime, were tried in November 1909 but none was as effective as copper sulphate. By 1910 a major offensive began; the dose of chemical used was increased to 182 lbs per acre and between 3rd and 5th May some three tons of copper sulphate were sprinkled over the foreshore with another nine tons being used between 8th June and 26th July. The cost including labour was £2. 11s. 0d. per acre. The next step was to clear the dead seaweed and mussels using gangs of men who loaded this material into barges and dumped it in the area of the lough where the Harbour Commissioners were forming an embankment.

The Belfast Health Commission report is a landmark in the improvement of the public health of the city because items so long neglected, and yet shown to be

essential by Chadwick and others many years previously, were seriously tackled. The water supplies from Woodburn and Stoneyford catchment areas were provided with larger filtration beds of sand, bacteriological control of water after filtration was instigated, and plans were laid to develop the reservoirs in the Mourne mountains. Collection of shellfish for food from the mussel beds in Belfast lough was prohibited owing to the frequent outbreaks of typhoid and dysentery, larger sewage works were planned and reclamation of the slob lands in front of the mouth of the river Connswater and within the limits of the city was proposed. Lastly, the work of the Belfast Public Health Commission and the Medical Officer of Health and his staff were restructured.

ENGLAND AND NORTHERN IRELAND

Dr. Carnwath took up the first of many posts in England in 1907 as assistant physician at the Infectious Diseases Hospital, Salford. Appointment as assistant medical officer of health, Manchester, followed in 1908 and in 1910 he became a medical inspector for His Majesty's Local Government Board and lecturer in public health at St. Thomas's Hospital, London. Dr. Carnwath served as a territorial force officer in the Royal Army Medical Corps from 1912 and was mobilized on the outbreak of war in the summer of 1914. He joined The Honourable Artillery Company as medical officer to the first battalion of one thousand men which reached French soil at St. Nazaire on Sunday, 20th September. Following fierce action at Ypres in June, 1915, Colonel Triffry of the 1st H.A.C. wrote this tribute¹⁵

"During this action no one behaved with more steadfast courage or showed a greater devotion to duty than our Medical Officer, Captain Carnwath. He had his aid post in our original front line and from the time of the first assault when the wounded commenced to come in, in fact even before that time, he was at his post and remained there all through the 16th, all through the night of 16-17th, and all through the 17th, on the latter day searching about for any who might have been overlooked and wanted aid. His unit had been relieved and gone down but he still carried on until no further wounded could be found. This had been the spirit in which Carnwath had worked ever since the Battalion came out and I am sure all ranks of the H.A.C. will agree that no more sympathetic, human or devoted medical officer was ever attached to a unit".

In January, 1916 Dr. Carnwath was transferred to Salonika to set up field medical laboratories because many of the sources of drinking water had been poisoned deliberately. Whilst serving as a captain in General Milne's campaign he became seriously ill from dysentery and other infections, and at one point was given up for dead; he was later sent to Malta to recuperate for six months before returning by sea to London. During his military service Dr. Carnwath was mentioned four times in dispatches and received the D.S.O. at Buckingham Palace on 6th April, 1918.¹⁶ Dr. Carnwath was demobilized on 16th May, 1918 and transferred to the Territorial Force Reserve. Appointment to a T.A. commission in the R.A.M.C. followed on 3rd August, 1920 until he resigned on 28th March, 1922.

Sir John Simon had proposed a central co-ordinating health department for the whole country in 1854. By 1871 there were 11 government headquarters medical staff available to advise the Ministry of Health and local authorities.¹⁷ In 1914 this figure was 43 and in 1918 there were 46 such individuals. The Ministry of Health was established by Parliament passing the Ministry of Health Act in 1919 following public concern about outbreaks of disease after demobilisation of the Armies who fought in the Great War and the necessity of improving the health of child-bearing women and infants, the treatment of tuberculosis and the rehabilitation of war veterans. Dr. Carnwath began his career in the Ministry of Health by being appointed to the post of medical officer in 1919. At that time the chief medical officer was Sir George Newman and there were eight sections, each in charge of a senior medical officer and staffed by between four and fourteen medical officers and other persons. The sections were: I. General Health and Epidemiology, II. Maternity and Child Care, III. Tuberculosis and Venereal Disease, IV. The supervision of food supplies, V. General Practitioner Services, VI. Sanitary administration in relation to infectious disease, VII. Welsh Board of Health, VIII. Medical officers employed for special purposes. Dr. Carnwath joined the largest section covering General Health and Epidemiology which was supervised by Dr. G.S. Buchanan and had among his fellow officers Major Greenwood, later to become Professor of Epidemiology and Vital Statistics at the London School of Hygiene and Tropical Medicine. As well as assessing annually the state of the public health using historical, economic, social, epidemiological, biological and medical information, much work was concerned with setting up and administering the medical organisations of central and local government. We take this for granted now and perhaps too easily forget the firm foundations laid down by these men and women prior to the introduction of the National Health Service in 1948. The annual reports of the chief medical officer from the 1920s through to the 1940s stress the need to put preventive medicine into practice and frequently quote examples from the experiences of pioneers such as Simon, Chadwick and Farr in England¹⁸ and Frank in Germany.¹⁹

During the period from 1929 to 1935 on promotion to senior medical officer Dr. Carnwath was in charge of a section responsible for nutrition, food and drugs administration, London hospitals and water supplies. Dr. Buchanan by now had received a knighthood and was responsible for a section dealing with medical intelligence and infectious diseases. Nutrition in particular was an active and important topic as Professor Edward Mellanby and his wife were publishing their results of the role of vitamin D in the development of bone and teeth,²⁰ the associated diseases of rickets²¹ and dental caries. This vitamin was prepared in pure form for the first time simultaneously in England and Germany in 1931. Tuberculosis due to non-pasturised milk consumption also was a big problem and the licensing of herds for the production of Certified and Grade A (tuberculin tested) milk began in England in 1926. Some idea of the amount of disease is given by the figure for tuberculosis notifications for 1929, some 74,820 persons in England and Wales and a death rate of 96 per 1000 population (based on 37,990 deaths in 37,606,000 persons at risk). Problems which are still with us today including food poisoning, contamination of food by metals such as lead from substandard canning processes and adulteration of milk, alcoholic drinks and drugs took up considerable resources together with more esoteric illnesses as for example, food poisoning from

polluted mussels and oysters. Billingsgate market in London retailed 10,000 tons of shellfish in 1920 and 344 tons were condemned by the officers of the Fishmongers' Company. Addition of chlorine to sea or fresh water to kill bacteria was pioneered in England by Sims Woodhead in 1897 at Maidstone, Kent, following an outbreak of typhoid fever (he added bleaching powder to the public water supply and stopped the epidemic) and this method was adopted both for sources of drinking water and also for cleansing shellfish in specially constructed tanks. These were introduced at Conway in North Wales by the Ministry of Agriculture and Fisheries and were a great success. However as they were located in the sea estuary their value became limited in future years due to increasing pollution so that many authorities, including Belfast, eventually banned the collection and sale of mussels and shellfish from local loughs.

After a long and distinguished career Sir George Newman retired in 1935 to be succeeded by Sir Arthur MacNalty and in that year Dr. Carnwath was promoted to the post of deputy to the chief medical officer. Again, the new chief medical officer in the introduction to his annual report for the year 1939 selected as his theme "the new and wider interpretation of preventive medicine". Following a summary of progress in infectious disease control, Sir Arthur applies the new scientific findings on nutrition towards the practical problem of the diet of the people. The advisory committee on nutrition appointed in 1931 was reconstituted in 1935 under the chairmanship of Lord Luke and their work assumed increasing importance with the pending outbreak of the Second World War in 1939 and the necessity of food rationing. During these years at the Ministry Dr. Carnwath also acted as an examiner in public health at the Universities of Birmingham, London, Manchester and Belfast, as well as being a member of the executive committee of the Bureau of Hygiene and Tropical Diseases, the Army Hygiene Advisory Council, the Board of Studies in Hygiene and Public Health of the University of London and the Joint Board of the Royal Sanitary Institute's and Sanitary Inspector's Examination. He was given the honorary degree of Doctor of Science by his alma mater on 10th July 1935; Professor Carnwath, dean of the Faculty of Science, presented Thomas Carnwath and another distinguished Queensman, Major-General William McArthur, deputy director general of Army Medical Services, to the Vice-Chancellor, Mr. Ogilvie, on that day. Following the outbreak of war in 1939, Dr. Carnwath spent many nights at the Ministry of Health leaving his wife, Margaret, alone at home. Mrs. Carnwath had suffered from severe and crippling arthritis over many years and by 1940 the situation was most difficult. Dr. Carnwath therefore decided to retire at age 62 years from his post as deputy chief medical officer. His successor was a close friend and colleague Sir Weldon Dalrymple-Champneys. Sir Arthur MacNalty also retired early in 1940 to be succeeded by Sir Wilson Jameson as chief medical officer for a period of 10 years and then by Sir John Charles in 1950.

Dr. Carnwath returned to Ulster to live at Cragside, Whitehead, County Antrim.²² This house had been built in 1937 by Charlotte Despard²² the well-known suffragette and socialist and a sister of Field Marshall Lord French, Lord Lieutenant of Ireland. His medical work continued unabated and at the request of a special committee of the Belfast Corporation he made an investigation of the city's municipal health services in 1941. In addition he chaired a committee enquiring into salaries and conditions of service of nurses in mental hospitals in Northern Ireland in 1944.^{23, 24}

At this time the Province was debating the introduction of a national health service and there were a number of committees examining various aspects of this question. The services provided by Belfast Corporation were being assessed by a committee, locally known as 'the big six',²⁵ while the Government of Northern Ireland had set up a select committee to examine the health services. Dr. Carnwath presented extensive evidence²⁶ based on his experience at the Ministry of Health in England and Wales to this latter committee. In 1942 he was elected a convocation member of the Senate of the Queen's University and was also approached to accept nomination for a vacancy in the Senate of the Parliament of Northern Ireland; he later withdrew in favour of the official Unionist Party candidate.

Dr. Carnwath died at his home in Whitehead on 2nd April, 1954.^{27, 28, 29} He was survived by his wife, Margaret Ethel, daughter of the late Andrew McKee of Belfast whom he married in 1908, and two sons Andrew and Douglas. A memorial service was held in the Presbyterian College Chapel, Belfast, conducted by Rev. W.F.S. Stewart, Minister of Whitehead Presbyterian Church. Thomas Carnwath's name is preserved by the generous endowment by his family to the Medical Faculty of Queen's. He is remembered as a most kind and friendly man of great strength of character and charm. His strong family roots in county Tyrone and sound undergraduate training in Belfast prepared him well to occupy some of the most responsible medical positions in the country. He gave freely of his experience and ability on numerous public bodies, committees and commissions and his life and work of service to the community stand as a lasting memorial.

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